



Conventional Construction for the NOvA Far Detector

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All Experimenters Meeting

December 7, 2009



Overview

- Two Construction Packages
 - Site Prep Package
 - Far Detector Building
- Ash River, Minnesota
 - ~30 miles south of International Falls
 - Last East-West Road in U.S.
- Cooperative Agreement
 - Between DOE and the University of Minnesota





Site



Artist Rendering of Completed Construction

Image from Google



Site Preparation Package

- Site Preparation Package

- Includes:

- Wetland Mitigation
 - Construction of ~3.5 miles of all-weather access road
 - Excavation of Rock at Far Detector Building Site
 - Electric and Data/Communication Utilities

- Permits/Authorizations:

- Environmental Assessment Worksheet – Final in December 2007
 - Validated Section 404 Permit – December 2008
 - Wetland Credits Purchased – January 2009
 - General Stormwater Permit – May 2009
 - Notice To Proceed – May 2009
 - University of Minnesota Building Permit – June 2009
(University is the Authority Having Jurisdiction)



Cultural Resources

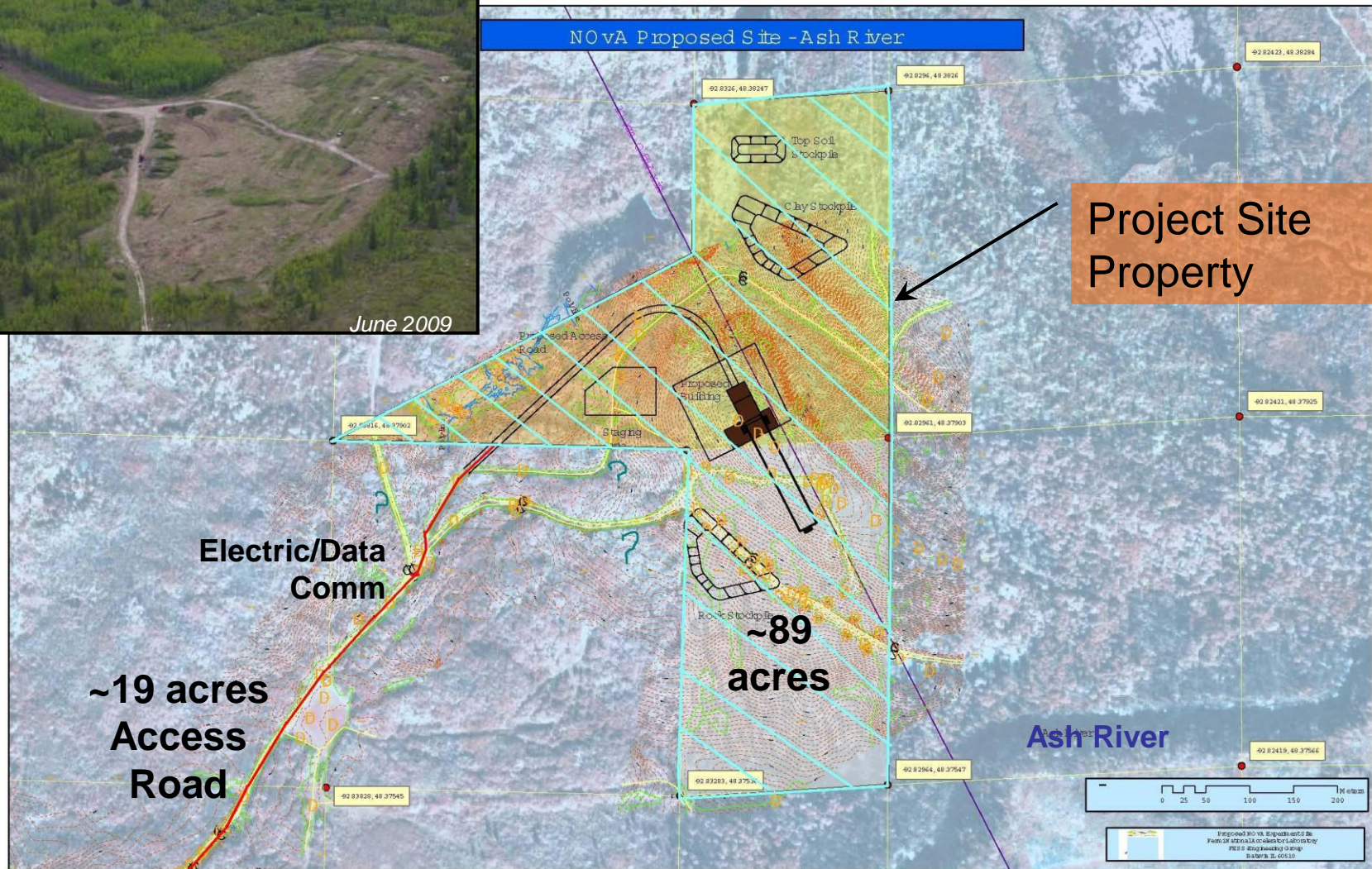




Ash River Site



June 2009





Brightstar Road



April 2006



Brightstar Road



August 2009



Brightstar Road



2006

October 2009



Far Detector Building

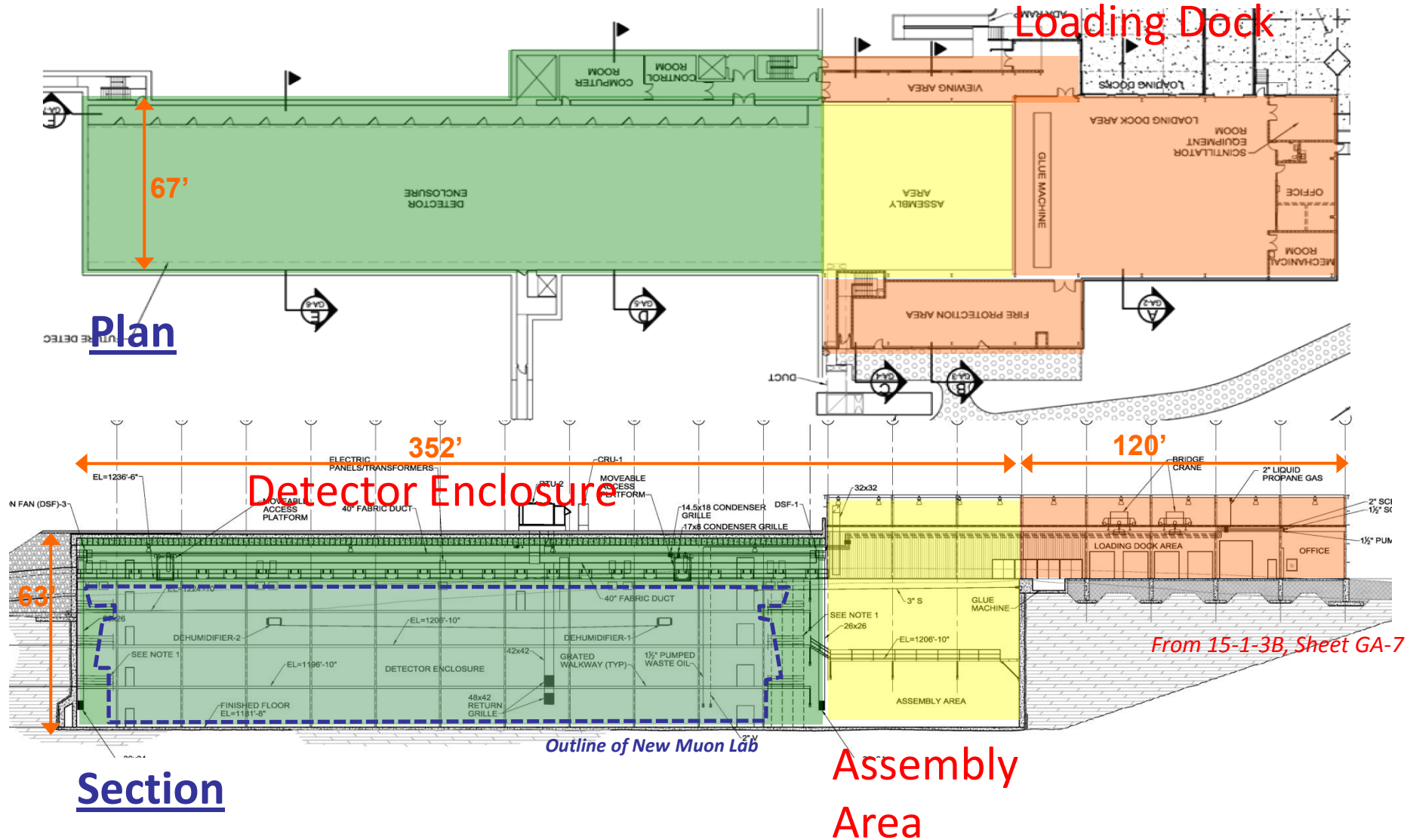
- WBS 2.1.2 – Far Detector Building
 - Includes:
 - Below Grade Detector Enclosure/Assembly Area Concrete
 - At-Grade Service Building (Loading Dock, Offices, Mechanical Spaces)
 - Scintillator Unloading Area
 - Site Construction



Artist Rendering of Completed Construction



Far Detector Building





Far Detector Building



View From Loading Dock



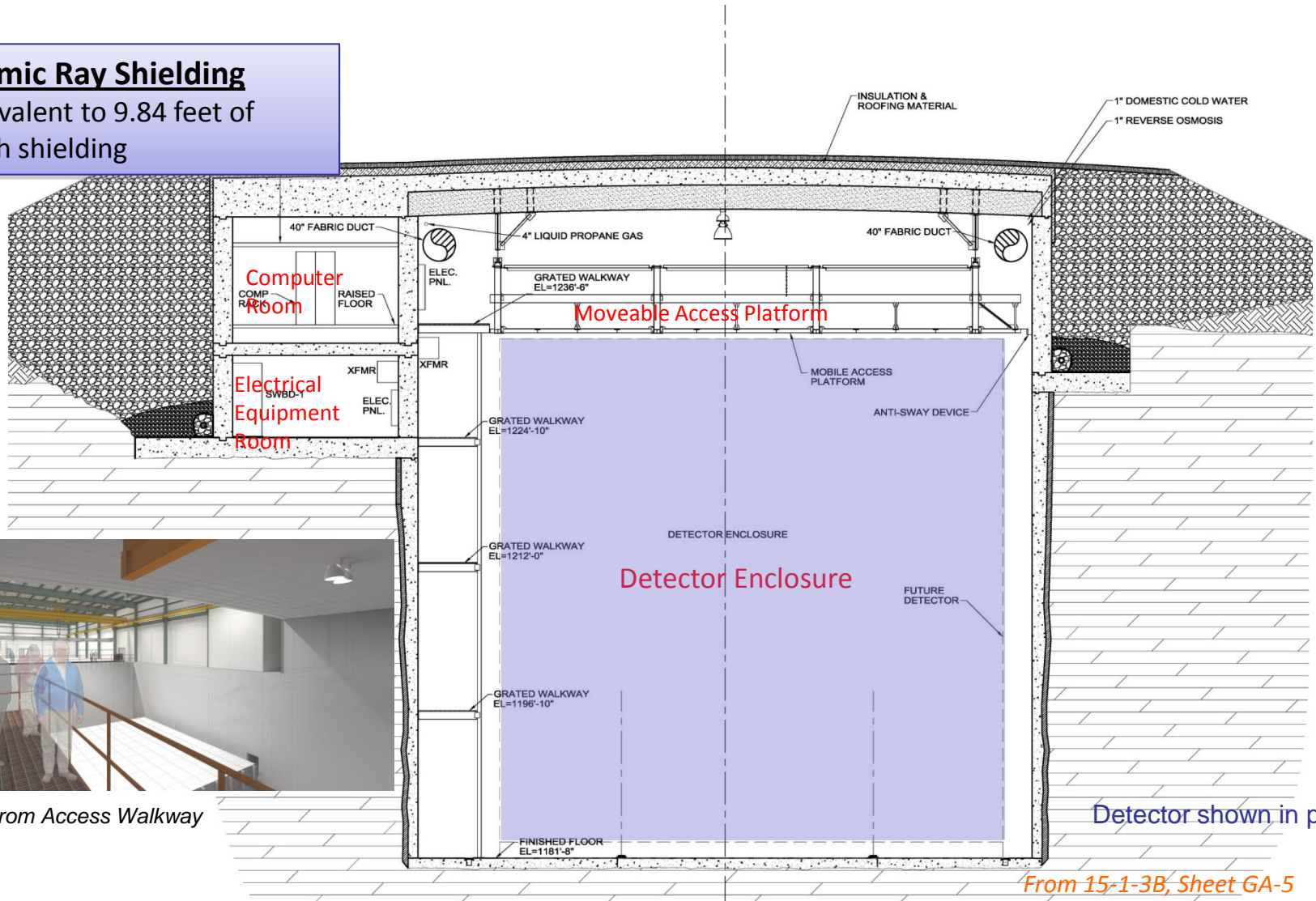
View From Viewing Area



Far Detector Building

Cosmic Ray Shielding

Equivalent to 9.84 feet of earth shielding



View From Access Walkway



Barite



New Riverside Ochre – Cartersville, GA

Barite Mill





Barite





Barite





Barite





Barite





Far Detector Building



November 2009



Status

- **March 2009**
 - Issued Documents for Proposal
- **April 2009**
 - Received six (6) proposals;
 - Interviewed two (2) firms;
- **May 2009**
 - Groundbreaking
 - Issued Notice to Proceed for Site Prep Package
 - Received National Pollution Discharge Elimination System (NPDES) Permit
- **June 2009**
 - Received Building Permit for Site Prep Package
 - Began work on Site Prep Package





Far Detector Building





Far Detector Building



July 2009



Far Detector Building



August 2009



Far Detector Building





Far Detector Building



September 2009



Far Detector Building





Far Detector Building



October 2009



Far Detector Building





Far Detector Building



November 2009



Far Detector Building



November 2009



Far Detector Building



November 2009



Far Detector Building



November 2009



Far Detector Building



November 2009



Far Detector Building



November 2009



Far Detector Building



- Rock Excavation through Jan/Feb 2010
- Concrete Starts in April 2010
- Limited Occupancy in Fall of 2010
- Completion in Spring 2011

- Photo Site:
 - <http://novaproject.shutterfly.com/>
- Webcam:
 - <http://www.ibeamsystems.com/private/nova/>